

Claims

1. Tool, preferably a rotationally driven cutting tool, in particular for the fine machining of workpieces, in which at least one cutting insert (16; 16; 216) is fastened detachably in a pocket (18) of a blade bearer (14; 114; 214) in that it is clamped flatly against a base surface (24; 224) of the pocket (18), whereby for the adjustment of a blade (42, 44) there is allocated to the cutting insert (16; 116; 216) a fine adjustment device with which, with the aid of an adjusting screw arrangement (52, 56; 152, 156; 252, 258), an adjusting element (62; 262) that is supported on a lateral wall (68; 268) of the cutting insert (16; 116; 216) can be adjusted relative to the cutting insert (16; 116; 216),

characterized in that

the adjusting screw arrangement (52, 56; 152, 156; 252, 258) comprises a threaded sleeve (52; 152; 252) that is held, preferably with play, in a smooth through opening (46; 146; 246) having a narrow point (50; 150; 250, 250*),

and comprises a screw part (56; 156; 258) standing in functional engagement therewith, that stands in a chain of pressure force with the adjusting element (62; 262), whereby the adjusting screw arrangement (52, 56; 152, 156; 252, 258) is placed into the through opening (46; 146; 246) from the side facing the base surface (24; 224), and can be actuated from the other side through the narrow point (50; 150; 250, 250*).

2. Tool as recited in Claim 1, characterized in that the narrow point (50; 150; 250, 250*) has an inner width (WL) that is smaller than the outer diameter of the threaded sleeve (52; 152), and in that the screw part (56; 156) of the adjusting screw arrangement (52, 56; 152, 156) is formed by a screw bolt whose threaded segment (58) goes over via a step (60) into a preferably wedge-shaped beveled head (62) that forms the adjusting element.

3. Tool as recited in Claim 1, characterized in that the screw part (258) is formed by a screw bolt that is engaged with the threaded sleeve (252) that is held in essentially rotationally secure fashion in the through opening (246), the threaded segment (258) of said bolt going over into a

cylindrical pin segment (276) that engages, with a degree of play, in a blind opening (274) of an adjusting body (262) that is preferably laterally beveled and that forms the adjusting element.

4. Tool as recited in Claim 3, characterized in that the narrow point (250) has an inner width (WL*) that is smaller than the outer diameter of the screw bolt (258).

5. Tool as recited in one of Claims 1 to 4, characterized in that the adjusting element (62; 162; 262) is seated flatly on the lateral wall (68; 268) of the cutting insert (16; 116; 216).

6. Tool as recited in one of Claims 1 to 5, characterized in that the adjusting element (62; 162; 262) on the side facing the cutting insert (16; 116; 216) is supported largely flatly on an inner wall of the through opening (46; 146; 246).

7. Tool as recited in one of Claims 1 to 7, characterized in that the cutting insert (16; 116; 216) is formed by an indexable insert, and the adjusting element (62; 162; 262) is supported on a flank (68; 268).

8. Tool as recited in one of Claims 1 to 7, characterized in that the pocket (18) that accepts the cutting insert (16; 116; 216) has two supporting walls (34, 36) which together enclose an angle that corresponds to a corner angle (EW) of the cutting insert (16; 116; 216).

9. Tool as recited in one of Claims 1 to 8, characterized in that the through opening (46; 146; 246) in the blade bearer (14; 114; 214) has an extension along an axis (48) that is placed at an angle (WA) to the base surface (24) of the pocket (18) of the blade bearer (14; 114; 214).

10. Tool as recited in Claim 9, characterized in that the through opening (46; 146; 246) is formed by an essentially cylindrical opening.

11. Tool as recited in one of Claims 1 to 10, characterized in that the narrow point (50; 150; 250,

250*) in the through opening (46; 146; 246) is formed by a material shoulder.

12. Tool as recited in one of Claims 1 to 11, characterized in that the blade bearer (14; 114; 214) is formed by a hard material, preferably a sintered material, such as for example a hard metal or a Cermet material.

13. Tool as recited in Claim 12, characterized in that as a hard material a carbide, a nitride, a boride, or a non-metallic hard material or hard material system is chosen, such as are known for example in the form of mixed carbides, carbon nitrides, carbide-boride combinations, or as mixed ceramics and nitrides ceramics.

14. Tool as recited in one of Claims 1 to 13, characterized in that the inner winding (54; 254) of the threaded sleeve (52; 152; 252) has a size in the range from M0.8 to M16, preferably from M1.2 to M16.

15. Tool as recited in one of Claims 1 to 14, characterized in that at least selected functional surfaces of the tool that are exposed to increased wear, such as for example the cutting insert (16; 116; 216) and/or the fine adjustment device (46, 52, 5662 [sic: 56, 62?], 64; 254, 258, 274, 276, 262) are provided with a coating.

16. Tool as recited in Claim 15, characterized in that the coating is realized as a hard material layer.

17. Tool as recited in Claim 16, characterized in that the hard material layer is made of diamond, preferably nanocrystalline diamond, of TiN or of (Ti,Al)N, of a multilayer coating or of a layer made up of nitrides having metal components Cr, Ti, and Al, and preferably having a low portion of elements for grain refinement, whereby the Cr portion is from 30 to 65 %, preferably 30 to 60 %, and particularly preferably 40 to 60 %, the Al portion is from 15 to 35 %, preferably 17 to 25 %, and the Ti portion is from 16 to 40 %, preferably 16 to 35 %, and particularly preferably 24 to

35 %, with respect to all metal atoms in the overall layer.

18. Tool as recited in Claim 17, characterized in that the construction of the overall layer is made of a homogenous mixed phase.

19. Tool as recited in Claim 17, characterized in that the construction of the overall layer is made up of a plurality of individual layers that are homogenous in themselves, made up alternately of, on the one hand, $(Ti_xAl_yY_z)N$ with $x = 0.38$ to 0.5 , $y = 0.48$ to 0.6 , and $z = 0$ to 0.04 , and on the other hand of CrN, whereby the uppermost layer of the anti-wear protective layer is preferably formed by the CrN layer.

20. Tool as recited in one of Claims 1 to 19, characterized in that the cutting insert is formed by a DIN/ISO indexable insert.

21. Tool as recited in one of Claims 1 to 20, characterized in that the cutting insert is made of a hard and/or wear-resistant material, such as for example hard metal (HM), polycrystalline diamond (PKD), cubic boron nitride (CBN), Cermet, ceramic, or another hard material.